



2004 SAE

Government / Industry Meeting
EDR: Developments and Challenges-
Government Perspective

May 12, 2004

John Brophy

National Highway Traffic Safety Administration
Special Crash Investigations



Topics

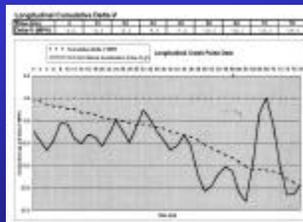
- **Field Data Collection Efforts**
- **Real World Performance of Certified Advanced Air Bags**
- **NHTSA's Event Data Recorder (EDR) Collection Programs**

Coordination with Industry

- Working with Crash Investigators, Engineers and Designers

- **Case-by-Case evaluation on**

- Real World Performance of the Certified Advanced 208 Compliant (CAC) System Technologies
- EDR Readouts



EDR Program at NHTSA Field Data Collection

- **NHTSA currently collects EDR crash data in three major vehicle crash programs:**

- **NASS-CDS** – A national statistically sampled data base, currently collecting data on about 4-5,000 crashes each year at 27 locations around the U.S.
- **SCI** – A collection of targeted crash investigations looking at emerging safety issues
- **CIREN** – A system of crash investigations conducted at hospitals, collecting about 400 cases per year

Notifications

- SCI Teams
- NASS Teams
 - CDS (Out of Sample)
 - GES
- Law Enforcement
- FARS
- Insurance Companies
- Etc.



Certified Advanced 208 Compliant CAC Vehicles

Research Priorities:

- Involve a CAC Vehicle
- No deployment criteria
 - Research both deployments and non-deployments

Focus on:

- System performance
- Air bag related injuries
- Out-of-position occupants
- Small statured adults
- Children
- Higher speed crashes (belted and unbelted)
- Unusual circumstances
 - with early identification of potential problems



Objectives of CAC Compliant Investigations

- Examine safety impact of rapidly changing technology in airbags
- Provide data to the Agency to assess the “real world” performance of these vehicles



Objectives of the CAC Compliant Investigations

- Provide early detection of alleged or potential vehicle defects
- Provide data to determine if they offer a greater measure of:
 - Safety for children and out of position occupants
 - While offering improved protection to adults in crashes of high severity

Objectives of the CAC Compliant Investigations

NHTSA
People Saving People

- **Work with manufacturers to learn specifics of system technologies**
- **Pursue cases covering a wide range of crash scenarios**



NCSA

National Center for Statistics and Analysis

National Highway Traffic Safety Administration
U.S. Department of Transportation

NHTSA



Minimum Criteria for Case Selection

NHTSA
People Saving People
www.nhtsa.dot.gov

- **2003 or newer model year vehicle**
- **Certified Advanced 208 Compliant vehicle involved**
- **Vehicle available for inspection**



NCSA

National Center for Statistics and Analysis

National Highway Traffic Safety Administration
U.S. Department of Transportation

NHTSA

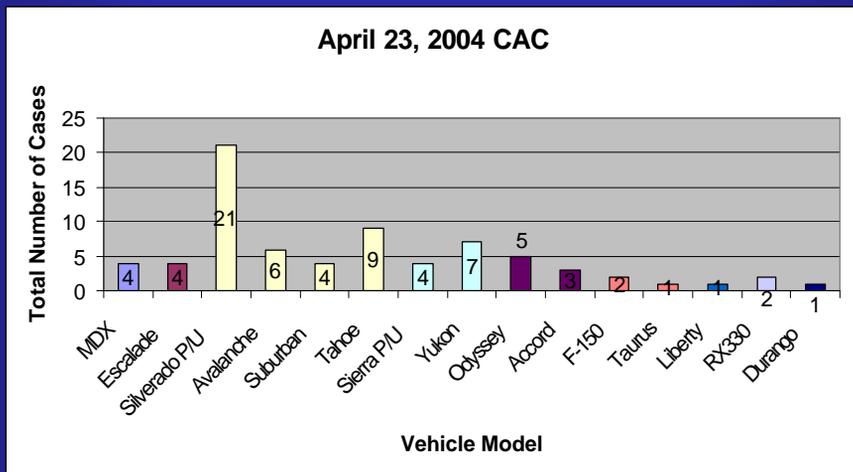


Certified Advanced Compliant Vehicles



Certified Advanced 208 Compliant Vehicles					
NOT FOR DISTRIBUTION OUTSIDE OF NASS / SCI / CIREN					
March 25, 2004					
2003 Models		2004 Models			
Make	Model	Make	Model	Make	Model
Acura	MDX	Acura	MDX	Honda	Accord
		BMW	Z4Roadster	Honda	Odyssey
		BMW	525i	Hyundai	Elantra
Cadillac	Escalade	BMW	530i	Infiniti	QX56
Cadillac	Escalade ESV	BMW	545i	Jeep	Liberty
		BMW	645i	Kia	LD
Chevrolet	Silverado Pickups	BMW	745	Lexus	ES330
Chevrolet	Avalanche	BMW	760Li	Lexus	RX330
Chevrolet	Suburban	BMW	X3	Mazda	Mazda 3
Chevrolet	Tahoe	Cadillac	Escalade	Mazda	Mazda MPV
		Cadillac	ESV	Mercury	Sable
GMC	Sierra Pickups	Chevrolet	Silverado/Pick Up	Mitsubishi	Galant
GMC	Yukon	Chevrolet	Avalanche	Nissan	Pathfinder Armada
GMC	Yukon Denali	Chevrolet	Tahoe	Nissan	Quest
		Chevrolet	Suburban	Nissan	Titan
Honda	Odyssey	Dodge	Durango	Saturn	Ion
		Ford	F-150	Suzuki	Grand Vitara
		Ford	Taurus	Toyota	Camry
		GMC	Sierra/Pick Up	Toyota	Highlander
		GMC	Yukon/Denali	Volkswagen	Beetle and Convertible

Cases to Date



CAC Cases to Date



Since 2003 - - SCI has initiated 74 CAC cases

In these cases:

- No fatalities or serious injuries have been associated with the air bag(s)
- Mixture of:
 - Deployments
 - Non-deployments
 - Split deployments
 - Single stage (most)
 - Two stage air bag deployments (some)



EDR Program at NHTSA Field Data Collection



- Currently NHTSA has over 2000 EDR data files in the Electronic Data System (EDS)



Event Data Recorder (EDR) Information in CAC Vehicles



Currently our Field Investigators can download EDR data from:

- Most General Motors Products
- Some Ford Products

However - -

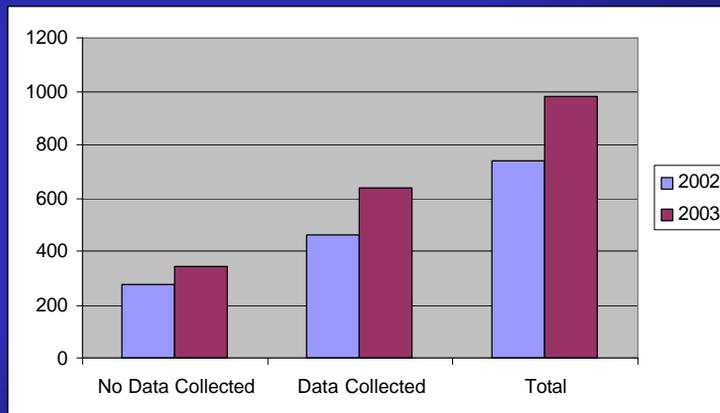
- Only some pickups and sport utilities are CAC compliant
- No downloadable Ford products are currently CAC compliant



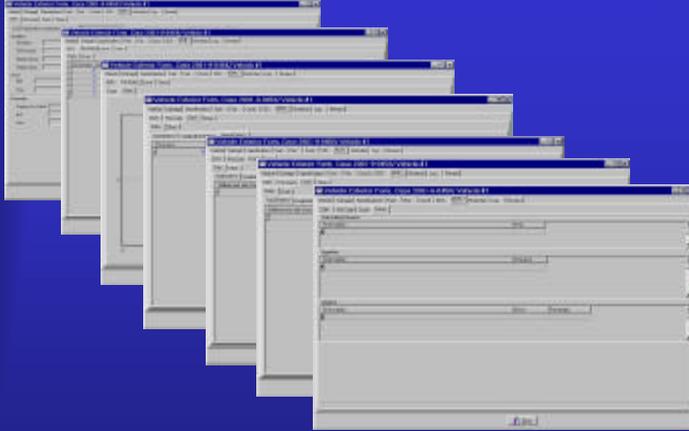
EDR Field Data Collection in NASS



Currently, data collection efforts are successful in downloading about 60% of the applicable vehicles



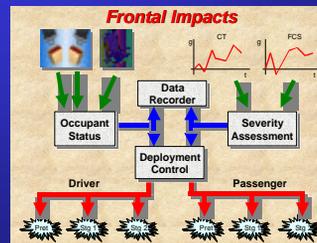
EDR Data Coding



- EDR data coded into Electronic Data System
- Data file will be available late spring 2004

Advanced Occupant Protection Systems

- The air bag control module deploys protection systems based on specified parameters
- **Without EDR Data - - Our Investigators cannot determine:**
 - System performance
 - When the air bag(s) deployed
 - Which stage the air bag(s) deployed
 - Timing issues (pretensioners, 2nd stage deployments, disposals)



EDR Challenges . . .

- The most effective method to observe and/or measure and confirm the performance of Advanced 208 Compliant Occupant Protection System Features is through the EDR data



NHTSA Findings on Air Bags

- Data Published Quarterly on NHTSA Web site:
 - Crashes involving air bag deployment related fatal and seriously injured occupants with a delta V less than 25 mph
 - CAC Air Bags
 - Side Air Bags
 - AOPS Cases
 - Redesigned Air Bags

www.nhtsa.dot.gov

Questions ?

